



Patent

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANTS: TAKASHI MURATA ET AL EXAMINER: E.A. Bolden  
SERIAL NO.: 10/059,833 GROUP: 1755  
FILED: JANUARY 30, 2002  
FOR: ALKALI-FREE GLASS AND GLASS PLATE FOR A  
DISPLAY

DECLARATION UNDER 37 CFR 1.132

MAIL STOP RCE  
Commissioner of Patents  
P.O. BOX 1450  
Alexandria, VA. 22313-1450

Sir:

I, Takashi Murata, hereby declare the following:

1. I graduated from Okayama University, a graduate school of engineering, in March 1999 and joined Nippon Electric Glass Co., Ltd. in April 1999. In April 2000, I was assigned to the technical division of the company. Since then, I have been engaged with development of a plate glass for a liquid crystal display.

2. I performed the following experimental tests during the period between November 15, 2003 and December 26, 2003:

I prepared a glass sample of Example 13 shown in Table 1 of USP 6060168 and a glass sample of Example 12 shown in Table 1 of EP 1070681 A1 and examined hydrochloric acid resistance (HCl resistance) and buffered hydrofluoric acid resistance (BHF resistance) for those glass samples.

Each glass sample was prepared in the following manner:

At first, raw materials were weighed and mixed so as to obtain a glass having a composition shown in the following table. The mixture was put into a platinum crucible and melted in an electric furnace at 1550°C for 19.5 hours. During melting, the glass was stirred. Thereafter, the glass was water-granulated. The granulated glass was dried and put into a platinum crucible. The glass was continuously stirred and re-melted in an electric furnace with a stirrer at 1585°C for 18.5 hours. Thereafter, the glass was poured out and formed into a plate-like shape. The plate-like glass was placed in an annealing furnace held at 750°C and cooled down to the room temperature. The plate-like glass thus obtained was cut into a size of 30 x 25 x 5 mm and subjected to optical polishing on both surfaces to produce the glass sample. Each glass sample was dipped into 10 mass% hydrochloric acid aqueous solution and treated at 80°C for 3 hours. Thus, the HCl resistance was examined. On the other hand, each glass sample was dipped into 63 BHF solution (HF: 6 mass%, NH<sub>4</sub>F: 30 mass%) and treated at 20°C for 30 minutes to examine the BHF resistance. For each of the HCl resistance and the BHF resistance, the glass sample after treated was visually observed and evaluated as X and ○ if the surface of the glass was clouded or roughened and if the surface of the glass was unchanged, respectively. The result is shown in the following table. In addition, the photographs of the surfaces of the glass samples are attached hereto.

	(mass%)	
	USP6060168 Example 13	EP1070681A1 Example 12
SiO <sub>2</sub>	62.7	62.0
Al <sub>2</sub> O <sub>3</sub>	16.4	15.5
B <sub>2</sub> O <sub>3</sub>	12.3	8.1
MgO	-	3.0
CaO	8.6	5.5
SrO	-	4.0
BaO	-	0.8
ZrO <sub>2</sub>	-	0.2
SnO <sub>2</sub>	-	0.5
TiO <sub>2</sub>	-	0.2
CeO <sub>2</sub>	-	0.2
HCl resistance	×(clouded)	○
BHF resistance	○	×(roughened)

As is obvious from the table and the photographs, in Example 13 of USP 6060168, the surface was clouded due to HCl. In Example 12 of EP 1070681A1, the surface was roughened by BHF. Although the photograph showing the BHF resistance of Example 12 in EP 1070681 A1 is not clear, it was visually observed that a part of the surface was slightly clouded. Furthermore, the surface was observed by a microscope (x 52). As a result, small irregularities were formed throughout the surface and roughening was observed as clearly seen from the photograph.

From the foregoing, Example 13 of USP 6060168 is inferior in HCl resistance and Example 12 of EP 1070681 A1 is inferior in BHF resistance.

3. I further declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Date: January 28, 2004

Takashi Murata

TAKASHI MURATA

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